# QC ABSTRACT

**NAME OF WORK:** Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division.

| SL NO | Item Of Work | Name of Test | Frequency of Test/Quantity | Executed Quantity | Number of Tests Required | Number of Tests Conducted |
|---|---|---|---|---|---|---|
| | | **Materials** | | | | |
| 1 | WMM | Sieve Analysis | One Test | | 1 | 1 |
| | | Impact Value | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| 2 | BC | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | STRIPPING VALUE | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | IMPACT VALUE | One Test | | 1 | 1 |
| | | Specific gravity | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Marshal Stability | One Test | | 1 | 1 |
| | | Marshal flow | One Test | | 1 | 1 |
| | | Percent air Voids | One Test | | 1 | 1 |
| | | Percent Voids in mineral | One Test | | 1 | 1 |
| | | Percent Voids filled with Bitumen | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Gradation | One Test | | 1 | 1 |
| 3 | BITUMEN | Ductility | One Test | | 1 | 1 |
| | | Softening Point | One Test | | 1 | 1 |
| | | Penetration | One Test | | 1 | 1 |
| | | Flash Point | One Test | | 1 | 1 |
| | | Fire Point | One Test | | 1 | 1 |



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# TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** **Date: 27-01-20** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 25-01-20 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 25-01-20 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 315 | 315 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2259 | 2574 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2179 | 4753 | 43.2 | 56.8 | 40-60 |
| 4.75 | 2251 | 7004 | 63.7 | 36.3 | 25-40 |
| 2.36 | 1621 | 8625 | 78.4 | 21.6 | 15-30 |
| 0.6 | 623 | 9248 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1338 | 10586 | 96.2 | 3.8 | 0-5 |

**Note:-**

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# TEST REPORT OF AGGEGRATE IMPACT VALUE
## IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** **Date: 27-01-20** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 25-01-20 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 25-01-20 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 300.2 | 300.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 225.9 | 225.8 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.6 | 24.7 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.6 | |

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# DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

Date: 27-01-20

| | | |
|---|---|---|
| Lab ID | : | CP-RW-2020-03-04-10 |
| Customer | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| Address | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| Project Name | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| Agency | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| Customer Reference | : | BBMP/EE/BTP/WO/198/2019-20 |
| Source of Sample | : | Sample supplied by Agency |
| Sample Condition | : | Satisfactory |
| Date of Receipt | : | 25-01-20 |
| Type of Mix | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| Date of test | : | 25-01-20 |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 12.8% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 12.5% | |
| Combined Flakiness and Elongation Index for WMM | 25.3% | |

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# TEST RESULTS OF GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** **Date: 10-02-20** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 08-02-20 |
| **Type of Mix** | : | BC-Plant (Bituminous Concrete) |
| **Date of test** | : | 08-02-20 |
| **Oven Dry Weight** | : | 5000 Grams |

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-17(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 89 | 89 | 1.8 | 98.2 | 90-100 |
| 9.5 | 702 | 791 | 15.8 | 84.2 | 70-88 |
| 4.75 | 895 | 1686 | 33.7 | 66.3 | 53-71 |
| 2.36 | 587 | 2273 | 45.5 | 54.5 | 42-58 |
| 1.18 | 492 | 2765 | 55.3 | 44.7 | 34-48 |
| 0.6 | 503 | 3268 | 65.4 | 34.6 | 26-38 |
| 0.3 | 528 | 3796 | 75.9 | 24.1 | 18-28 |
| 0.15 | 458 | 4254 | 85.1 | 14.9 | 12-20 |
| 0.075 | 350 | 4604 | 92.1 | 7.9 | 4-10 |
| PAN | 396 | 5000 | 100 | 0.0 | 0 |

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**Technical Manager**



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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL |
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# TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** **Date: 11-02-20** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 08-02-20 |
| **Type of Mix** | : | BC(Bitumenous Concrete) |
| **Date of test** | : | 08-02-20 |

| | | |
|---|---|---|
| **Type of Binder** | : | 60/70 |
| **% of Binder Used** | : | 5.0% |
| **Weight of Aggregate** | : | 200.0 gm |
| **Weight of Binder** | : | 10.0 gm |
| **Temperature of water bath** | : | 40°C |

| No of test | Retained Stripping Percentage | Stripping Percentage | Average Retained Stripping Percentage | Secified limits as per MORTH specification table 500-8 |
|---|---|---|---|---|
| 1 | 98.5 | 1.5 | 98.3 | Minimum Retained Coating 95% |
| 2 | 98.5 | 1.5 | | |
| 3 | 98.0 | 2.0 | | |

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# PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

**Date: 11-02-20**

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 08-02-20 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 08-02-20 |

**Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete**

| Property | Test | Result | Specification | Method of Test |
|---|---|---|---|---|
| Partical Shape | Flakiness Index | 12.4 | Combined Flakiness & Elongation Index for BC is Maximum 35% | IS:2386 Part I |
| | Elongation Index | 11.8 | | |
| Strength | Aggregate Impact Value | 22.1 | Maximum 24% | IS:2386 Part IV |
| Specific gravity | Specific gravity | 2.68 | Maximum 2.7 | IS:2386 Part III |
| Water Absorption | Water Absorption | 0.21 | Maximum 2% | IS:2386 Part III |

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# TESTS RESULTS ON STABILITY OF MIX

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** **Date: 11-02-20** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Hot Mix Plant, Bangalore |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 08-02-20 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 08-02-20 |

**The results of the tests conducted on the Bituminous Concrete mix sample are as follow**

| Sl.No | Particulars of observations | TEST 1 | TEST 2 | Secified limits as per MORTH specification table 500-11 |
|---|---|---|---|---|
| 1 | Marshal Stability at 60°C, KN | 11.14 | 11.13 | 10KN(min) |
| 2 | Marshal flow at 60°C, mm | 3.52 | 3.51 | 2-4 |
| 3 | Percent air Voids | 4.82 | 4.83 | 3-5 |
| 4 | Percent Voids in mineral Aggregate(VMA %) | 14.28 | 14.26 | 13-15 |
| 5 | Percent Voids filled with Bitumen(VFB %) | 71.87 | 71.63 | 65-75 |
| 6 | Density, g/cc | 2.25 | 2.26 | – |

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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

Date: 17-02-20

| | | |
|---|---|---|
| **Lab ID** | : | CP-RW-2020-03-04-10 |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Date of Receipt** | : | 14-02-20 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 14-02-20 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 477 | 476 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 4.60 | 4.80 |
| 4 | Average percentage | % | 4.7 | |

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Lab ID : Date :

## SIEVE ANALYSIS - TEST 1

Total Weight of the Sample(gm) :

| IS Sieve Size (mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | Cumulative % of Retained | Passing | Limits as per specification (upper limit-lower limit) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 0 | 0 | 0.0 | 100.0 | 90-100 |
| 9.5 | 40 | 40 | 13.9 | 86.1 | 70-88 |
| 4.75 | 110 | 150 | 52.1 | 47.9 | 53-71 |
| 2.36 | 80 | 230 | 79.9 | 20.1 | 35-50 |
| 1.18 | 30 | 260 | 90.3 | 9.7 | 18-29 |
| 0.6 | 11 | 271 | 94.1 | 5.9 | 8-22 |
| 0.3 | 6 | 277 | 96.2 | 3.8 | 0-15 |
| 0.15 | 4 | 281 | 97.6 | 2.4 | 0-6 |
| 0.075 | 3 | 284 | 98.6 | 1.4 | 0-3 |

## SIEVE ANALYSIS - TEST 2

Total Weight of the Sample(gm) :

| IS Sieve Size (mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | Cumulative % of Retained | Passing | Limits as per specification (upper limit-lower limit) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 0 | 0 | 0.0 | 100.0 | 90-100 |
| 9.5 | 40 | 40 | 13.9 | 86.1 | 70-88 |
| 4.75 | 110 | 150 | 52.1 | 47.9 | 53-71 |
| 2.36 | 80 | 230 | 79.9 | 20.1 | 35-50 |
| 1.18 | 30 | 260 | 90.3 | 9.7 | 18-29 |
| 0.6 | 11 | 271 | 94.1 | 5.9 | 8-22 |
| 0.3 | 6 | 277 | 96.2 | 3.8 | 0-15 |
| 0.15 | 4 | 281 | 97.6 | 2.4 | 0-6 |
| 0.075 | 3 | 284 | 98.6 | 1.4 | 0-3 |

Note:

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# TEST REPORT ON BITUMEN

**Date: 05-02-20**

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2020-03-04-10** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Filling of Pot Holes Ward No. 9, (Vidyaranyapura) Vidyaranyapura Sub Division. |
| **Agency** | : | Sri. Madhusudhan.R, #890, IEHCS Layout Left Side, BEL Layout, Vidyaranyapura, Bangalore-560-097. |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/198/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 04-02-20 |
| **Sample Type** | : | Bitumen |
| **Reference to BIS codes** | : | IS: 1201-1220(1978) (Reaffirmed-2004) |
| **Date of test** | : | 04-02-20 |

## Test Results

| Sl.no | Name of Test | Result | Requirements as per IS:73-2013 |
|---|---|---|---|
| 1 | Penetration at 25°C , in 1/10th mm | 64 | 60 to 70 |
| 2 | Softening Point, °C | 51.2 | Min. 40°C |
| 3 | Ductility, cm | 98 | Min. 75cm |
| 4 | Flash point, °C | 244 | Min. 220°C |
| | Fire point, °C | 272 | |

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